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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,931	11/20/2003	Kun-Seok Lee	8021-191 (SS-17862-US)	3157
22150 7590 11/26/2007 F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			EXAMINER GHEBRETINSAE, TEMESGHEN	
			ART UNIT 2611	PAPER NUMBER -
			MAIL DATE 11/26/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/718,931	Applicant(s) LEE, KUN-SEOK	
	Examiner Temesghen Ghebretinsae	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 3-8,10-15,18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

2. The indicated allowability of claim 9 is withdrawn in view of the newly discovered reference(s) to Oh. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Oh (Us2002/0145472).

5. Oh discloses a sigma delta modulator comprising: a plurality of operation units for adding input values to internal feedback values and for successively accumulating the added values up to a forth order.(214,216); a quantizer for quantizing an accumulated values output from a last one of the plurality of operation units into a

plurality of bits (220); and a plurality of multipliers for outputting feedback coefficients as internal feedback values to each of the plurality of the operation units, wherein the feedback coefficients are determined according to a quantized level corresponding to the plurality of bits(212) see fig.2 and paragraph {0041-0042}.

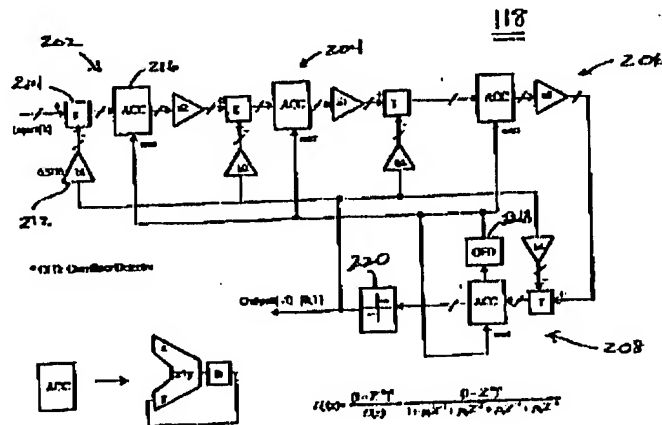


FIG. 2

6.

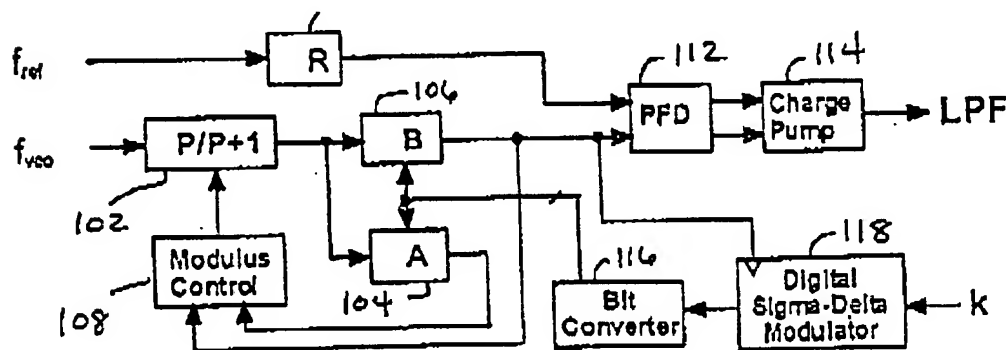
Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh in view of Doerr (6,980,139).

9. Oh discloses a fractional frequency synthesizer comprising: a phase detector for detecting a phase difference between a reference signal and a feedback signal (112); a voltage controlled oscillator for receiving a phase difference control signal based on the detected phase difference (f_{vco} is output from VCO not shown); a divider for selecting a value from at least plurality integers according to a predetermined selection signal, for dividing the frequency of the oscillated signal output from the voltage oscillator by the selected value, and for outputting a divided signals a feedback signal to the phase detector (102); a sigma-delta modulator (fig.2) for adding a predetermined input values to an internal feedback values (input(k) and output from 212), for successively accumulating added values (216) for quantizing an accumulated value to at least multi levels and for converting a quantized value into the predetermined selection signal (0,1).



10. Oh differs from the claimed invention in that the delta-sigma modulator includes single bit quantizer generating two levels. However, Doerrerr disclose a sigma delta modulator with multi bit quantizer (3- bit quantizer) generating multi-level. Oh and Doerrerr are analogues art because they are from the same field of endeavor of sigma-delta modulation. At the time of the invention it would have been obvious to one of

ordinary skill in the art to implement the teaching of Doerr (3-bit quantization) into Oh. The motivation/suggestion for doing so would have been to reduce the quantization noise. In communication art it is well known that multi-bit quantization reduces noise better than single-bit quantization.

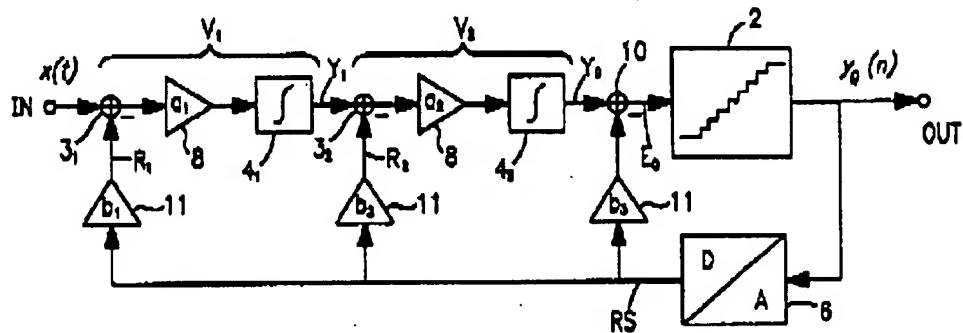


FIG. 1

11.

12. Oh (and Doerr) also discloses a sigma delta modulator comprising: a plurality of operation units for adding input values to internal feedback values and for successively accumulating the added values up to a forth order.(214,216); a quantizer for quantizing an accumulated values output from a last one of the plurality of operation units into a plurality of bits (220); and a plurality of multipliers for outputting feedback coefficients as internal feedback values to each of the plurality of the operation units, wherein the feedback coefficients are determined according to a quantized level corresponding to the plurality of bits(212) see fig.2 and paragraph {0041-0042}. As claimed in claims 2 and 17.

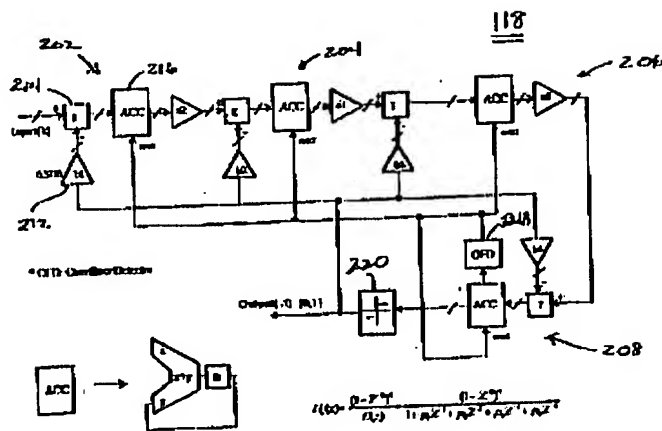


FIG. 2

Allowable Subject Matter

13. Claims 3-8, 10-15, 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to claims 1 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 571-272-3017. The examiner can normally be reached on Monday-Friday from 8 to 6. The examiner can also be reached on alternate.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammed, can be reached on 571-272-3021. The fax phone

Application/Control Number:
10/718,931
Art Unit: 2611

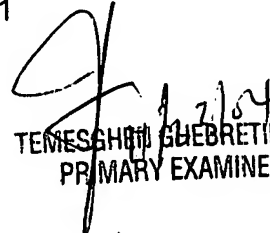
Page 7

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Temesghen Ghebretinsae
Primary Examiner
Art Unit 2611

15. T.Ghebretinsae 11/27/07 PK


TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER